

## REMARKS

Applicants wish to thank the Examiner for the courtesies extended to the undersigned during the telephone interview. An interview summary accompanies this response.

Claims 36-38, 40-42, and 53-65 stand rejected under 35 U.S.C. 103(a) for obviousness over U.S. Patent Nos. 5,755,614 and 5,664,990 to Adams et al. in view of U.S. Patent No. 5,923,433 to Giuffre et al.

Applicants respectfully traverse the rejections and urge allowance of the present application.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See, e.g., MPEP §2143 (8<sup>th</sup> ed.).

Referring to the prior art rejection of claim 36, Applicants submit there is no motivation to combine the reference teachings and claim 36 is allowable for at least this reason. It is stated on pages 2-3 of the Action that Adams fails to disclose the particulars of a turbidity sensor. The Action relies upon the combination of teachings of Giuffre with Adams in support of the 103 rejection. The reliance is misplaced and the rejection is improper.

More specifically, on page 3 of the Action, it is stated that it would have been obvious to modify Adams with the teachings of Giuffre in order to take a variety of different kinds of measurements on media flowing therethrough thereby enhancing the control of the characteristics of the slurry in the system of Adams. The alleged motivation presented fails to support a proper 103 rejection.

First, Adams already teaches the ability to take different kinds of measurements of slurry and accordingly the alleged motivational rationale is redundant in view of the explicit teachings of Adams. Further, the Action fails to provide any evidence to support the bald allegation that the measurements of Giuffre would provide enhanced control of the characteristics of the slurry over the system of Adams. There is no motivation to combine the reference teachings and the rejection of claim 36 is improper for at least this reason.

Referring to Adams, at col. 6, lines 54-65 it is disclosed that a *pH sensor 51, temperature sensor 52, and conductivity sensor 53 are provided. Other sensors including turbidity sensors, densitometers, ion-specific electrodes, voltammeter cells, infrared sensors, ultraviolet sensors and visual sensors* may be provided. The sensors may be used for information, alarm, and control of characteristics of slurry. Accordingly, Adams already teaches the usage of a turbidity sensor in combination with numerous other sensor configurations. One of skill in the art already apprised of the teachings of Adams would not look to Giuffre for meaningful teachings "in order to take a variety of different kinds of measurements" since such teachings are already disclosed in Adams. Why would one look to Giuffre for meaningful teachings when the motivational rationale for the combination

is already presented and disclosed in Adams? Applicants submit the only motivation results from improper reliance upon Applicants' disclosure and accordingly the 103 rejection is improper. The motivation for forming the combination must be something other than hindsight reconstruction based on using Applicant's invention as a road map for such a combination. See, e.g., *Interconnect Planning Corp. v. Feil*, 227 USPQ 543, 551 (Fed. Cir. 1985); *In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990).

In addition, Applicants note that there is absolutely no evidence of record that the combination of the teachings of Giuffre over and beyond that disclosed in Adams (if any) would enhance the control of characteristics of the slurry system of Adams. The Federal Circuit discussed proper motivation *In re Lee*, 61 USPQ 2d 1430 (Fed. Cir. 2002) stating that the factual inquiry whether to combine references must be through and searching. It must be based on objective evidence of record. The Court in *In re Fritch*, 23 USPQ 2d 1780, 1783 (Fed. Cir. 1992) stated motivation is provided only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. The *Lee* Court stated that the Examiner's conclusory statements in the *Lee* case do not adequately address the issue of motivation to combine. The Court additionally stated that the factual question of motivation is material to patentability and can not be resolved on subjective belief and unknown authority. The Court also stated that deficiencies of cited references cannot be remedied by general conclusions about what is basic knowledge or common sense. The Court further stated that the determination of patentability must be

**based on evidence.** There is no evidence to support the Examiner's motivational rationale and the 103 rejection is improper for at least this reason.

In addition, Applicants' claim 36 defines the monitoring comprising *emitting electromagnetic energy towards the slurry and receiving at least some of the electromagnetic energy*. Other turbidity monitoring methods exist apart from the claimed emitting and receiving. The Office has presented absolutely no argument or evidence as to why one of skill in the art would be motivated to use Applicants' claimed method when suitable alternatives exist. Once again, the Office has improperly relied upon Applicants' disclosure in formulating the 103 rejection and the rejection is improper for at least this reason:

For at least the above-mentioned reasons, Applicants submit the 103 rejection of claim 36 is improper and Applicants request allowance of claim 36 in the next Action:

The claims which depend from independent claim 36 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to claim 53, Adams fails to disclose or suggest emitting electromagnetic energy towards the claimed connection for supplying slurry to the process chamber, the receiving at least some of the electromagnetic energy, or the generating of the signal. In addition, there is no motivation to combine the reference teachings of Giuffre with the teachings of Adams. Claim 53 is allowable for at least these reasons.

The claims which depend from independent claim 53 are in condition for allowance

for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to claim 58, there is no motivation to combine the teachings of Giuffre with the teachings of Adams and claim 58 is allowable for at least this reason.

In addition, even if the references are combined, the combination fails to disclose or suggest numerous positively-recited limitations and claim 58 is allowable for this additional reason. For example, claim 58 recites emitting infrared electromagnetic energy, *splitting the infrared electromagnetic energy to direct some of the infrared electromagnetic energy towards a connection*, first and second receivings of the infrared electromagnetic energy, *generating a feedback signal responsive to the first receiving, adjusting the emitting responsive to the feedback signal to provide a substantially constant amount of electromagnetic energy to the first receiver*, and *generating a signal indicative of turbidity responsive to the second receiving of the electromagnetic energy*. At least these limitations of claim 58 are not disclosed or suggested in Adams or Giuffre.

Notably, the Office fails to identify any reference teachings of Adams or Giuffre which allegedly disclose or suggest the positively claimed splitting, plural generatings, adjusting, or plural receivings. In the event that a rejection of the claims is maintained with respect to the prior art, or a new rejection made, Applicants respectfully request identification *in a non-final Action* of elements which allegedly correspond to limitations of the claims in accordance with 37 C.F.R §1.104(c)(2). In particular, 37 C.F.R §1.104(c)(2) provides that *the pertinence of each reference, if not apparent, must be clearly explained*

*and each rejected claim specified.* Further, 37 C.F.R. §1.104(c)(2) states that the Examiner must cite the best references at their command. When a reference is complex or shows or describes inventions other than that claimed by Applicants, the particular teachings relied upon must be designated as nearly as practicable. The pertinence of each reference if not apparent must be clearly explained for each rejected claim specified. Applicants respectfully request clarification of the rejections with respect to specific references and specific references teachings therein pursuant to 37 C.F.R. §1.104(c)(2) in a non-final Action if claim 58 is not found to be allowable.

The claims which depend from independent claim 58 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to claim 61, Adams fails to disclose or suggest monitoring turbidity of slurry during supplying of the slurry to a process chamber using a sensor in combination with insulating the slurry from the sensor. In addition, there is no motivation to combine the reference teachings of Giuffre with the teachings of Adams. Claim 61 is allowable for at least these reasons.

Referring to claim 62, Applicants have amended claim 62 for clarity. There is no motivation to combine the teachings of Giuffre with the teachings of Adams and claim 62 is allowable for at least this reason. In addition, even if the references are combined, the combination fails to disclose or suggest numerous positively-recited limitations and claim 62 is allowable for this additional reason. Claim 62 recites *supplying slurry to the*

*semiconductor process chamber using a supply connection, monitoring turbidity of the slurry within the supply connection, and wherein the supply connection is configured to supply the slurry in at least a partially horizontal direction.* The prior art is devoid of teaching or suggesting limitations of claim 62 including monitoring slurry while being supplied in at least a partially horizontal direction as claimed. Applicants have electronically searched Adams and have failed to locate any teachings regarding supply of slurry using a supply connection in at least a partially horizontal direction as claimed. The teachings of col. 6, lines 54-65 of Adams merely state that turbidity may be monitored with absolutely no details regarding a suitable implementation of turbidity monitoring let alone monitoring of slurry being supplied in at least a partially horizontal direction as claimed. Accordingly, even if the references are combined, the combination of reference teachings fails to disclose or suggest limitations of claim 62 and claim 62 is allowable for at least this reason.

Referring to claim 64, there is no motivation to combine the teachings of Giuffre with the teachings of Adams and claim 64 is allowable for at least this reason. In addition, even if the references are combined, the combination fails to disclose or suggest numerous positively-recited limitations and claim 64 is allowable for this additional reason. For example, claim 64 recites supplying slurry to a semiconductor process chamber, and the supplying comprises *directly supplying the slurry to the chamber with no modification of a physical property of the slurry after the monitoring*. The Action fails to identify any reference teachings which allegedly disclose or suggest the claimed direct supplying

without physical modification. To the contrary, Adams clearly discloses a filter 56 which filters the slurry after all sensors 51-53 have monitored the slurry. As set forth in col. 7, lines 7-12 of Adams, filter 56 operates to remove particles larger than 25 microns from the slurry and other filters may be used. Accordingly, Adams clearly discloses filtering the slurry after monitoring of the slurry and immediately before the slurry is provided to the pad 11. The explicit teachings of Adams fail to disclose or suggest the claimed *directly supplying the slurry to the chamber with no modification of a physical property of the slurry after the monitoring* as positively claimed. Limitations of claim 64 are not shown nor suggested by the prior art and Adams explicitly teaches away from Applicants' claim 64 by filtering the slurry immediately before dispensing to the pad 11. Such teaching away is the antithesis of the art's suggesting that the person of ordinary skill go in the claimed direction. Essentially, teaching away from the art is a *per se* demonstration of lack of obviousness. *In re Dow Chemical Co.*, 837 F.2d 469, 5 USPQ2d 1529 (Fed. Cir. 1988). Claim 64 is allowable for at least the above-mentioned compelling reasons.

If claim 64 is not allowed, Applicants respectfully request issuance of a non-final Action in compliance with the above-identified sections of the CFR so Applicants may appropriately respond.

Applicants submit new prior art in an IDS filed herewith.

Applicants request allowance of all pending claims.

The Examiner is requested to phone the undersigned if the Examiner believes such would facilitate prosecution of the present application. The undersigned is available for

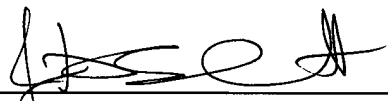


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telephone consultation at any time during normal business hours (Pacific Time Zone).

Respectfully submitted,

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